

## FISH LAKE PRE-REHABILITATION PLAN

### PROPOSAL

#### *Justification for Proposed Rehabilitation*

- Fish Lake, located in north-central Okanogan County, is a medium sized lowland lake of exceptional aesthetic appeal. In years past, it has been an excellent producer of rainbow trout 10"-12", including a number of larger carryover trout. Since the 2004 rehabilitation, which removed smallmouth bass, the lake has received an illegal plant of largemouth bass, which has caused the trout catch to decline both in numbers and size. In those years, the brown bullhead population has also increased leading to additional competition effects on the trout population.
- When competing species are controlled, Fish Lake is capable of producing an excellent quality trout fishery. The lake receives 30,000 rainbow trout fingerlings from Omak Hatchery annually in the spring. There have been many inquiries from the public on the decline of the trout fishery in Fish Lake, as evidenced by the lack of carryover fish in the catch. Lake rehabilitation is needed to remove competing species and to restore Fish Lake back to a viable trout fishery.
- Primary management of these waters is for trout only.
- Lake rehabilitation with rotenone was a successful management tool for Fish Lake in 2004.

#### *Physical Description of Waters Proposed for Rehabilitation*

- WATER: *Fish Lake*
- LOCATION: *Sec 16 and 22, T36N, R25E, Okanogan Co.*
- SURFACE ACRES: *102*
- MAX. DEPTH: *60*
- VOLUME: *2,856 acre feet*
- OUTLET: *Outflow is dry except for intermittent spring runoff into Schallow Pond.*
- STREAM: *MILES N/A FLOW N/A*
- PUBLIC ACCESS: *WDFW campgrounds and boat launch sites available*
- LAND OWNERSHIP: *Public 100%, Private 0%*
- ESTABLISHED RESORTS: *none*

#### *Proposed Management Actions*

- WATER: *Fish Lake*
- TARGET SPECIES: *largemouth bass and brown bullhead*
- DATE LAST REHABED: *October 2004*
- PROPOSED TREATMENT DATE: *October 2011*
- REPLANTING DATE: *Spring 2012*
- SPECIES: *rainbow trout*
- STOCKING: *10,000 catchable rainbow, plus 20,000 fingerling rainbow*
- PROPOSED TOXICANT: *Rotenone, powder and liquid*
- CONCENTRATION: *4 ppm*
- AMOUNT (ROTENONE AT 5%): *30,845 lbs. powder, 30 gal. liquid*
- METHOD OF APPLICATION: *pumper boat - slurry and spray, airboat with sprayer*
- CREW DESCRIPTION: *Leader Robert Jateff, Personnel 12-15*

## **PURPOSE**

Fish Lake has been managed as trout production water since the 1950's. Complete rehabilitation is the most desirable method in restoring the lake to a trout only fishery.

## **INTENDED OUTCOME/MEASURE OF SUCCESS**

Complete removal of bass and bullheads is the goal. Success of this measure will be apparent during annual creel surveys. Given a good chance of eliminating the populations of undesirable species, the beneficial effects should be lasting. Future rehabs will be necessary to maintain the fishery, if bass continue to be illegally introduced.

## **RESOURCE IMPACTS**

- Target species: *Largemouth bass and brown bullheads*
- District and Regional Habitat, Wildlife and Non-Game biologists have been apprised of our rehabilitation plans. No objections were raised, and only cautionary concerns were expressed on the potential impacts to non-targeted species. Fingerling rainbow will be planted early in the spring post-rehab to provide a food base for common loons, which are known to inhabit the area.
- According to Bradbury (1986), the effects of rotenone on benthos are variable, depending on the concentrations and species. Crustaceans are most tolerant while the smaller insects are most affected. Immediate reduction of the population averages 25% and survival doubles when access to bottom sediments exists. Benthic communities generally recover to at least pretreatment levels within two months. Zooplankton is more severely impacted, and communities generally take two to twelve months to fully recover. While relatively tolerant of even heavy doses of rotenone, amphibians (especially larval) are at risk, and herptiles are affected somewhat less so.
- The water is used for recreation and limited irrigation. Treatment will occur after irrigation ceases and when recreational use is at a minimum.
- Professional biologists and other naturalists have visited this site frequently over the past 50 years. To our knowledge, no endemic, rare, threatened or otherwise listed species will be negatively impacted by the rehabilitation. Nesting loons at Blue Lake, north of the treatment area, sometimes use Fish Lake as a feeding ground.

## **MITIGATING FOR ADVERSE IMPACTS**

- Trout survival and growth will be greatly enhanced. No removal of dead fish is planned as the nutrient base contained therein is best returned to the lake. Disturbance of waterfowl during treatment or by the anticipated fishery will be offset by increased food availability as the uncontrollable numbers of bass are eliminated in favor of easily balanced populations of trout.
- The lake will be at its lowest level in the late fall with no inlet/outlet streams.
- Protective gear for the eyes, face, hands and clothing will be supplied on-site for all purveyors of rotenone.
- The lake will be posted according to Department of Ecology guidelines to notify the public of the treatment and discourage the public from possessing or consuming dead

fish. The landowners will be notified of the rehabilitation and consequent exposure of livestock to rotenone.

- Treatment will be done in the fall when common loon chicks have fledged and are likely to not be in the general vicinity. Fish plants in the following spring will take advantage of the earliest possible date for planting to provide a continuation of the food chain for the loon population in the area. Both fingerlings and catchable trout will be planted at that time.

### **RECREATIONAL IMPACT**

- Recreational angling opportunity will be increased if the bass and bullheads are removed from Fish Lake. Catchable trout will be planted the spring following the rehab, which will provide a fishery until the fingerling plants take hold. The fishery will ultimately crash if there is no action taken to eliminate the undesirable species.

### **ECONOMIC IMPACTS**

- Rehabilitation would restore the fishery and associated economic activity. An estimated 3,500 angler trips will be made to Fish Lake as a result of the proposed management action, with an economic impact of \$462,000 per year (2004 dollars; based on WDW estimate of \$132 per trip). Fingerling/catchable fish plants will cost the agency \$3,500 and can be easily accomplished under current hatchery programs.
- The cost of treatment is about \$40,000, which is recovered with profit within the first one-three years after treatment.

### **RELATED MANAGEMENT ACTION**

- Following treatment in October 2011 the goal is to release about 10,000 catchable rainbow trout in early April 2012, at which time the fingerling program will be back on schedule with the release of 20,000 rainbow trout in early May.

### **PUBLIC CONTACT**

- Public concern over the increasing numbers of lakes in Okanogan County with undesirable species infestations prompted this action.
- A public meeting will be held in July to discuss the proposed treatment for Fish Lake. Letters will also be sent to any individual property owners as well as water rights holders.

Initiated by: Region Two Fisheries Management